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ABSTRACT

The Porter Need Satisfaction Questionnaire (PNSQ) is a 13-item questionnaire designed to measure a respondent's need satisfaction in five areas: Security, Social, Esteem, Autonomy, and Self-Actualization. In this study, the internal structure of the PNSQ is reexamined using a large multiorganizational sample of 2,049 middle and upper level managers from 29 independent organizations and agencies of state government, the original 13-item questionnaire, and more explicit factor-analytic procedures. The PNSQ items were presented as a part of a larger manpower survey and were completed anonymously. Description of all items are included as well as a discussion of the implications of the findings for past and future research on job satisfaction. (Author/DEP)

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A FACTOR-ANALYTIC EXAMINATION OF THE INTERNAL STRUCTURE OF A MASLOW-TYPE NEED SATISFACTION INSTRUMENT[1]

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The nature of job satisfaction, its antecedents and consequences have occupied a central position in organizational theory and research. While job satisfaction has been variously defined, one major theoretical stream has focused on the structure of the individual job occupant's psychological needs. Impetus for this view has derived largely from Maslow's (1943, 1954) five-category needs hierarchy and its operationalization by Porter (1961).

Several recent factor-analytic studies of the Porter Need Satisfaction Questionnaire (PNSQ), however, have challenged the dimensionality of the instrument and the a priori assignment of constituent items to the five need categories (Herman & Hulin, 1973; Payne, 1970; Roberts, Walter and Miles, 1971; Waters and Roach, 1973). Given the widespread and persistent use of the PNSQ in job satisfaction research (e.g., Barbee, 1972; Clark and McCabe, 1972; Ghiselli and Wyatt, 1972; Lawler and Suttle, 1972; Simpson and Peterson, 1972), these studies have thus raised the spectre of a rather serious results-methods dependency that would force reconsideration of a substantial body of empirical research.

Prior factor analytic studies, however, have methodological deficiencies which limit the generalizability of their findings. For example,

they employ convenience samples from single companies, sample sizes that are small relative to the number of variables being factored, and/or include new or modified items in their analysis. Moreover, the aforementioned studies involve unstated, ambiguous, or inappropriate criteria for determining the underlying dimensionality of the initial factor matrix.

The present study re-examines the internal structure of the PNSQ using a large multi-organizational sample, the original 13-item questionnaire, and more explicit factor-analytic procedures. There is also a discussion of the implications of the findings for past and future research on job satisfaction.

METHOD

The PNSQ is a 13-item questionnaire designed to measure a respondent's need satisfaction in five areas: Security, Social, Esteem, Autonomy, and Self-Actualization. Capsule descriptions of the items are shown in Table 1 and the instrument is fully described elsewhere (Porter, 1961).

In the present study the PNSQ was completed anonymously and returned by 2,049 middle and upper level managers from 29 independent organizations and agencies of state government. The Porter items were presented in random order as a part of a larger manpower survey. For each item, respondents were asked to indicate on a 7-point scale: (a) "How much of the characteristic is there now connected with your management position?", (b) "How much of the characteristic do you think should be

connected with your management position?," and (c) "How important is this position characteristic to you?" Response rates ranged from 84% to 100% among the various managerial populations surveyed. Following convention, perceived need deficiency for each respondent on each item was obtained by subtracting the "is now" from the "should be" part of the item. These difference scores have been the most widely used in prior research and constitute the principle data for the present study.

RESULTS AND DISCUSSION

Responses to the need deficiency scores of the 13 items were intercorrelated and factor analyzed by the principal components method. An application of Cattell's (1966) "scree test" to a plot of the eigenroots suggested a five-dimensional solution which would account for over 69% of the total variance. Accordingly, the first five factors were rotated according to the Varimax criterion. A five-dimensional solution is also consistent with the complexity of the instrument assumed by Porter.

In the terminal (rotated) solution, the proportion of both common and total variance accounted for by individual factors is relatively evenly distributed, with no single factor capturing a disproportionate share of the variance (see Table 1). This also supports a multi-dimensional interpretation. Contrary to earlier research, the resulting pattern of factor loadings approximates a Thurstone simple structure that is quite consistent with the a priori categories. Each factor is defined by one or more high

loadings with the remaining items being essentially uncorrelated with the factor. Most items have high loadings on only a single factor. Thus, Factor I is clearly interpretable as Porter's Autonomy need satisfaction cluster, Factor II as Esteem, Factor III as Security, Factor IV as Self-Actualization, and Factor V as Social need satisfaction. The few exceptions (e.g., item C-3) are not inconsistent with the suggested interpretation of the factors.

Communalities (h^2) for the individual items are generally quite high, suggesting that item reliability is respectable. In fact, the only item in which the common factor variance is less than 50% is B-2 or "the opportunity to help others." While the pattern of loadings for this variable is quite diffuse, its relatively high loading in the Self-Actualization need category is readily interpretable in terms of the population surveyed. Specifically, since most of the organizations in the sample are service-oriented, the "opportunity to help others" may understandably co-vary with a "feeling of worthwhile accomplishment."

In future research, it would be helpful to redesign item B-2 to prevent multiple interpretation. Since single item measures of need satisfaction are less reliable than composite measures, it would also be desirable to construct and test an additional item to tap the "security" dimension. Finally, to increase the discriminant validity of the instrument it would be useful to eliminate or "tune" the items with relatively low communalities, viz., items C-1, D-1, and E-3.

Separate factor analyses (not shown) were also performed on the "is now," "should be," and "importance" data and the results were comparable to those reported above. In each case, the pattern of roots suggested a five-dimensional solution that accounted for approximately 70% of the total variance and the pattern of rotated factor loadings generally confirmed the groupings postulated by Porter.

In the only factor-analytic study of the PNSQ that has employed the original 13-item set, Herman and Hulin (1973: 121) concluded that "the pattern of root sizes suggests that a one-dimensional solution would be the most parsimonious interpretation." This inference was apparently derived from the fact that only one eigenroot was greater than unity and that this root was much larger than the second eigenroot, i. e., the first factor in the unrotated solution accounted for a disproportionate percentage of the common variance. However, Cattell has demonstrated empirically that the Kaiser test (i. e., determining dimensionality by the number of eigenroots greater than unity) is very prone to Type 2 error when the number of variables is less than twenty. Use of this criterion thus tends to underestimate the dimensionality of the array and carries away too much real variance. As an alternative, the "scree test" employed in this study has been widely accepted.

Cattell and others have also persuasively argued that researchers should really be concerned with the relative sizes of the factors in the rotated

solution rather than the distribution of variance accounted for by factors in the initial factor matrix. In any case, both the pattern of root sizes as well as the distribution of variance accounted for by the rotated factors in the present research suggest that a five-dimensional solution is quite plausible.

CONCLUSION

The use of summated scale scores to test various hypotheses, as has been the practice in most research using the PNSQ, implicitly assumes that the constituent items measure relatively independent dimensions. Contrary to earlier studies, the present research suggests that the PNSQ does measure five discriminable dimensions of psychological need satisfaction. Moreover, the grouping of items into Maslow need categories originally postulated by Porter is generally supported by the present analysis. Thus, the PNSQ would appear to support the construction of scale scores that have been so widely employed in research on job satisfaction.

TABLE 1

Varimax Rotated Factor Loadings on Perceived Need Deficiency
Responses to Porter Need Satisfaction Questionnaire

Need Category and Item	Factor I	II	III	IV	V	h^2
A. Security need						
1. Security in position	.14	.05	**.91**	.10	.12	.88
B. Social needs						
1. Opportunity to develop close friendships	.16	.11	.11	.09	**.96**	.97
2. Opportunity to help others	.25	.18	.36	**.41**	.06	.40
C. Esteem needs						
1. Prestige inside organization	.36	**.56**	.23	.22	.14	.56
2. Prestige outside organization	.12	**.90**	.00	.09	.06	.83
3. Feeling of self-esteem	.35	**.49**	.26	.47	.05	.65
D. Autonomy Needs						
1. Authority in position	**.66**	.21	.06	.26	.13	.57
2. Opportunity for independent thought and action	**.71**	.09	.12	.30	.16	.64
3. Opportunity to participate in determining methods and procedures	**.82**	.14	.15	.13	.08	.73
4. Opportunity to participate in goal setting	**.73**	.20	.19	.22	.00	.66
E. Self-Actualization Needs						
1. Feeling of worthwhile accomplishment	.18	.15	.13	**.85**	.06	.80
2. Feeling of self-fulfillment	.41	.09	.06	**.76**	.08	.76
3. Opportunity for personal growth and development	**.43**	.29	.43	.30	.04	.55
Proportion of Common Variance:	32.22%	18.16%	15.22%	23.03%	11.38%	100%
Proportion of Total Variance:	22.35%	12.59%	10.56%	15.97%	7.89%	69.36%

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FOOTNOTES

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